

What is Claimed is:

1 1. A system for facilitating secure communications over a network, wherein said
2 network is accessed by a network interface receiving voice signals from a user and accessing
3 and navigating said network in accordance with said received voice signals, said system
4 comprising:

5 a security module to facilitate retrieval of information from said user in the form of
6 voice signals and to identify security related information received by said network interface
7 from a secure network site in response to accessing said secure network site;

8 a storage unit to store voice and security information associated with authorized users
9 of said system; and

10 a security system in communication with said security module and said storage unit
11 to verify said user as an authorized system user based on a comparison of said user voice
12 signals with said stored voice information and to retrieve said security information of said
13 verified user from said storage unit and negotiate communication parameters with said secure
14 network site in response to said identified security information received from said security
15 module to facilitate secure communications over said network between that site and said
16 network interface.

1 2. The system of claim 1 wherein said network includes the Internet.

1 3. The system of claim 1 wherein said network interface is in communication
2 with a communications device located remotely of said network interface, and said security
3 module facilitates retrieval of said user voice signals from said communications device.

1 4. The system of claim 3 wherein said communications device includes a
2 telephone.

1 5. The system of claim 3 wherein said communications device includes a
2 computer system having an audio input device.

1 6. The system of claim 5 wherein said audio input device includes a
2 microphone.

1 7. The system of claim 1 wherein said security module includes:
2 an identification module to identify said security related information received by said
3 network interface from said secure network site;
4 a communications module to facilitate communications with said security system and
5 said network interface, wherein said communications module includes:
6 a send module to provide said user information and said identified security
7 information to said security system to facilitate verification of said user and negotiation of
8 said communication parameters;
9 a receive module to receive a request for said user information, verification
10 results, responses to said identified security information and said negotiated communication
11 parameters from said security system; and
12 an interface module for providing said responses and said negotiated
13 parameters to said network interface to facilitate secure communications over said network
14 between said secure network site and said network interface; and
15 a user interface module to facilitate said user information request for retrieval of said
16 user information and to provide said verification results to said user.

1 8. The system of claim 7 wherein said security system includes:
2 an identification verification module to validate an identification within said user
3 information associated with an authorized system user;
4 an access module to retrieve said voice information from said storage unit associated
5 with said identification;
6 a selection module to select portions of said retrieved voice information and generate
7 said user information request, wherein said generated request includes a request for user
8 information corresponding to said selected portions of said retrieved voice information;
9 a voice verification module to verify said user by comparing said user voice signals
10 received from said security module in response to said user information request with said
11 stored voice information associated with an authorized user identified by said identification;

12 a security access module to retrieve security information for said verified user from
13 said storage unit;

14 a security negotiation module to process said identified security information received
15 from said security module and generate said responses thereto with said retrieved security
16 information to negotiate said communication parameters; and

17 a security communications module to facilitate communications with said security
18 module, wherein said security communications module includes:

19 a security send module to provide said user information request, said
20 verification results, said generated responses and said negotiated parameters to said security
21 module; and

22 a security receive module to receive said user voice signals and said identified
23 security information from said security module.

1 9. The system of claim 1 wherein said storage unit includes a database.

1 10. The system of claim 2 wherein said stored security information includes
2 private keys and certificates of said authorized system users.

1 11. The system of claim 1 further including:

2 an enrollment module to retrieve voice signals from said authorized system users and
3 process said authorized system user voice signals to produce said voice information for
4 storage in said storage unit.

1 12. A program product apparatus having a computer readable medium with
2 computer program logic recorded thereon for facilitating secure communications over a
3 network, wherein said network is accessed by a network interface receiving voice signals from
4 a user and accessing and navigating said network in accordance with said received voice
5 signals, said program product apparatus comprising:

6 a security module to facilitate retrieval of information from said user in the form of
7 voice signals and to identify security related information received by said network interface
8 from a secure network site in response to accessing said secure network site;

9 a storage module to store voice and security information associated with authorized
10 users; and

11 a secure communications module in communication with said security module and
12 said storage module to verify said user as an authorized user based on a comparison of said
13 user voice signals with said stored voice information and to retrieve said security information
14 of said verified user from said storage module and negotiate communication parameters with
15 said secure network site in response to said identified security information received from said
16 security module to facilitate secure communications over said network between that site and
17 said network interface.

1 13. The program product apparatus of claim 12 wherein said security module
2 includes:

3 an identification module to identify said security related information received by said
4 network interface from said secure network site;

5 a communications module to facilitate communications with said secure
6 communications module and said network interface, wherein said communications module
7 includes:

8 a send module to provide said user information and said identified security
9 information to said secure communications module to facilitate verification of said user and
10 negotiation of said communication parameters;

11 a receive module to receive a request for said user information, verification
12 results, responses to said identified security information and said negotiated communication
13 parameters from said secure communications module; and

14 an interface module for providing said responses and said negotiated
15 parameters to said network interface to facilitate secure communications over said network
16 between said secure network site and said network interface; and

17 a user interface module to facilitate said user information request for retrieval of said
18 user information and to provide said verification results to said user.

1 14. The program product apparatus of claim 13 wherein said secure
2 communications module includes:

3 an identification verification module to validate an identification within said user
4 information associated with an authorized user;

5 an access module to retrieve said voice information from said storage module
6 associated with said identification;

7 a selection module to select portions of said retrieved voice information and generate
8 said user information request, wherein said generated request includes a request for user
9 information corresponding to said selected portions of said retrieved voice information;

10 a voice verification module to verify said user by comparing said user voice signals
11 received from said security module in response to said user information request with said
12 stored voice information associated with an authorized user identified by said identification;

13 a security access module to retrieve security information for said verified user from
14 said storage module;

15 a security negotiation module to process said identified security information received
16 from said security module and generate said responses thereto with said retrieved security
17 information to negotiate said communication parameters; and

18 a security communications module to facilitate communications with said security
19 module, wherein said security communications module includes:

20 a security send module to provide said user information request, said
21 verification results, said generated responses and said negotiated parameters to said security
22 module; and

23 a security receive module to receive said user voice signals and said identified
24 security information from said security module.

1 15. The program product apparatus of claim 12 further including:

2 an enrollment module to retrieve voice signals from said authorized users and process
3 said authorized user voice signals to produce said voice information for storage in said storage
4 module.

1 16. A carrier signal having computer program logic embedded therein for
2 facilitating secure communications over a network, wherein said network is accessed by a

3 network interface receiving voice signals from a user and accessing and navigating said
4 network in accordance with said received voice signals, said carrier signal comprising:

5 a security module to facilitate retrieval of information from said user in the form of
6 voice signals and to identify security related information received by said network interface
7 from a secure network site in response to accessing said secure network site;

8 a storage module to store voice and security information associated with authorized
9 users; and

10 a secure communications module in communication with said security module and
11 said storage module to verify said user as an authorized user based on a comparison of said
12 user voice signals with said stored voice information and to retrieve said security information
13 of said verified user from said storage module and negotiate communication parameters with
14 said secure network site in response to said identified security information received from said
15 security module to facilitate secure communications over said network between that site and
16 said network interface.

17. The carrier signal of claim 16 wherein said security module includes:

18 an identification module to identify said security related information received by said
19 network interface from said secure network site;

20 a communications module to facilitate communications with said secure
21 communications module and said network interface, wherein said communications module
22 includes:

23 a send module to provide said user information and said identified security
24 information to said secure communications module to facilitate verification of said user and
25 negotiation of said communication parameters;

26 a receive module to receive a request for said user information, verification
27 results, responses to said identified security information and said negotiated communication
28 parameters from said secure communications module; and

29 an interface module for providing said responses and said negotiated
30 parameters to said network interface to facilitate secure communications over said network
31 between said secure network site and said network interface; and

16 a user interface module to facilitate said user information request for retrieval of said
17 user information and to provide said verification results to said user.

1 18. The carrier signal of claim 17 wherein said secure communications module
2 includes:

3 an identification verification module to validate an identification within said user
4 information associated with an authorized user;

5 an access module to retrieve said voice information from said storage module
6 associated with said identification;

7 a selection module to select portions of said retrieved voice information and generate
8 said user information request, wherein said generated request includes a request for user
9 information corresponding to said selected portions of said retrieved voice information;

10 a voice verification module to verify said user by comparing said user voice signals
11 received from said security module in response to said user information request with said
12 stored voice information associated with an authorized user identified by said identification;

13 a security access module to retrieve security information for said verified user from
14 said storage module;

15 a security negotiation module to process said identified security information received
16 from said security module and generate said responses thereto with said retrieved security
17 information to negotiate said communication parameters; and

18 a security communications module to facilitate communications with said security
19 module, wherein said security communications module includes:

20 a security send module to provide said user information request, said
21 verification results, said generated responses and said negotiated parameters to said security
22 module; and

23 a security receive module to receive said user voice signals and said identified
24 security information from said security module.

1 19. The carrier signal of claim 16 further including:

an enrollment module to retrieve voice signals from said authorized users and process said authorized user voice signals to produce said voice information for storage in said storage module.

20. A method of facilitating secure communications over a network, wherein said network is accessed by a network interface receiving voice signals from a user and accessing and navigating said network in accordance with said received voice signals, said method comprising the steps of:

(a) retrieving, via a security module, information from said user in the form of voice signals and identifying security related information received by said network interface from a secure network site in response to accessing said secure network site;

(b) storing voice and security information associated with authorized users in a storage unit;

(c) verifying said user as an authorized user based on a comparison of said user voice signals with said stored voice information via a security system; and

(d) retrieving, via said security system, said security information of said verified user from said storage unit and negotiating communication parameters with said secure network site in response to said identified security information to facilitate secure communications over said network between that site and said network interface.

21. The method of claim 20 wherein said network includes the Internet.

22. The method of claim 20 wherein said network interface is in communication with a communications device located remotely of said network interface, and step (a) further includes:

(a.1) retrieving said user voice signals from said communications device.

23. The method of claim 22 wherein said communications device includes a telephone.

1 24. The method of claim 22 wherein said communications device includes a
2 computer system having an audio input device.

1 25. The method of claim 24 wherein said audio input device includes a
2 microphone.

1 26. The method of claim 20 wherein step (a) further includes:
2 (a.1) providing said user information to said security system to facilitate verification
3 of said user in response to a request from said security system for user information;
4 (a.2) receiving verification results from said security system and providing said
5 verification results to said user;
6 (a.3) providing said identified security information to said security system to
7 facilitate negotiation of said communication parameters;
8 (a.4) receiving responses to said identified security information and said negotiated
9 communication parameters from said security system; and
10 (a.5) providing said responses and said negotiated parameters to said network
11 interface to facilitate secure communications over said network between said secure network
12 site and said network interface.

1 27. The method of claim 26 wherein step (c) further includes:
2 (c.1) validating an identification within said user information associated with an
3 authorized user;
4 (c.2) retrieving said voice information from said storage unit associated with said
5 identification;
6 (c.3) selecting portions of said retrieved voice information and generating said user
7 information request, wherein said generated request includes a request for user information
8 corresponding to said selected portions of said retrieved voice information; and
9 (c.4) verifying said user by comparing said user voice signals received from said
10 security module in response to said user information request with said stored voice
11 information associated with an authorized user identified by said identification and providing
12 said verification results to said security module; and

step (d) further includes:

(d.1) processing said identified security information received from said security module and generating said responses thereto with said retrieved security information to negotiate said communication parameters; and

(d.2) providing said responses and negotiated parameters to said security module to facilitate secure communications over said network between said secure network site and said network interface.

28. The method of claim 20 wherein said storage unit includes a database.

29. The method of claim 21 wherein said stored security information includes private keys and certificates of said authorized users.

30. The method of claim 20 further including the step of:

(e) retrieving voice signals from said authorized users and processing said authorized user voice signals to produce said voice information for storage in said storage unit.

31. A system for facilitating secure communications over a network, wherein said network is accessed by a network interface receiving voice signals from a user and accessing and navigating said network in accordance with said received voice signals, said system comprising:

a verification unit to verify said user as an authorized user based on a comparison of said user voice signals with stored voice information of authorized users; and

a negotiation unit to retrieve security information of said verified user remotely stored from said network interface and negotiate communication parameters with a secure network site to facilitate secure communications over said network between that site and said network interface.

32. The system of claim 31 wherein said network includes the Internet.

1 33. The system of claim 31 wherein said network interface is in communication
2 with a communications device located remotely of said network interface to receive said user
3 voice signals.

1 34. A method of facilitating secure communications over a network, wherein said
2 network is accessed by a network interface receiving voice signals from a user and accessing
3 and navigating said network in accordance with said received voice signals, said method
4 comprising the steps of:

5 (a) verifying said user as an authorized user based on a comparison of said user
6 voice signals with stored voice information of authorized users; and

7 (b) retrieving security information of said verified user remotely stored from said
8 network interface and negotiating communication parameters with a secure network site to
9 facilitate secure communications over said network between that site and said network
10 interface.

1 35. The method of claim 34 wherein said network includes the Internet.

1 36. The method of claim 34 wherein said network interface is in communication
2 with a communications device located remotely of said network interface to receive said user
3 voice signals.